This listing of claims presented below replaces all prior versions and listings of claims in the application.

Listing of Claims

IN THE CLAIMS

Claims 1-17 (Cancel)

18. (Currently Amended) A method to evaluate the integrity of chromatin or DNA of sperm cells of an animal comprising the following steps in sequence:

a) treating a sample containing the sperm, with a solution of DNA denaturing solution,

b) a single treatment step of treating the sample in the solution obtained in step a) with a lysis solution to extract nuclear proteins of the sperm cells, wherein the lysis solution does not contain protein denaturing detergents wherein the DNA denaturing solution and the lysis solution are different, and

c) evaluating the integrity of the chromatin or DNA of the sperm cells based on measurement of halo size of the sperm cells.

19. (Cancel)

20. (Previously Presented) The method according to claim 18, wherein the lysis solution comprises a non-ionic non protein denaturing detergent.

21. (Previously Presented) The method according to claim 20, wherein the non ionic detergent is selected from the group consisting of toctylphenoxypolyethoxyethanol (Triton X-100); N , N-bis(3-D-Gluconamidopropyl) cholamide (bigCHAP); Brij(r) 35 P; N-decanoyl-N-methylglucamine; digitonin; dodecanoyl-N-methylglucamide; heptanoyl-N-methylglucamide; branched octylphenoxy poly (ethyleneoxy) ethanol (Igepal CA-630); N-Nonanoyl-N-methylglucamine; Nonidet P 40; N-Octanoyl-N-methylglucamine; Span 20 solution; Polysorbate 20 (Tween 20) and a mixture thereof.

22. (Previously Presented) The method according to claim 18, wherein the lysis solution comprises sodium chloride between 1 and 3M, dithiothreitol (DTT) between 0.001 and 2M, 2-amino-2 (hydroxymethyl)-1,3-propanediol (Tris) between 0.001M and 2 M and Triton X-100 between 0.1% and 3%.

23. (Previously Presented) The method - according to claim 18, wherein the lysis solution comprises 2.5M sodium chloride, about 0.2M DTT, about 0.2M Tris, about 1% Triton X-100 and a pH of about 7.5.

24. (Previously Presented) The method according to claim 18, wherein the DNA denaturing solution is an acid solution.

25. (Previously Presented) The method according to claim 24, wherein the DNA denaturing solution comprises an acid selected from hydrochloric, acetic, nitric acid or a mixture thereof.

26. (Previously Presented) The method according to claim 25 wherein the DNA denaturing solution comprises hydrochloric acid.

27. (Previously Presented) The method according to claim 18 wherein after steps a) and b) there is a sample staining step.

28. (Previously Presented) The method according to claim 27 wherein the staining is made with a Wright type solution.

29. (Previously Presented) The method according to claim 28, wherein the sample containing the sperm is included in a medium similar to a suspension.

30. (Previously Presented) The method according to claim 29, wherein the sample containing the sperm is included in an agarose microgel.

31. (Withdrawn) A kit for performing the method of claim 18 which comprises:

a) a DNA denaturing solution;

b) a single lysis solution to extract nuclear proteins, wherein the lysis solution does not contain a protein denaturing detergent; and

c) instructions for treating the sperm and evaluating the integrity of the chromatin/DNA of the sperm.

32. (Withdrawn) The kit according to claim 31, wherein the lysis solution comprises sodium chloride between 1M and 3M , dithiothreitol (DTT) between 0.001M and 2 M, 2-amino-2

(hydroxymethyl)-1,3 propanediol (Tris) between 0.001M and 2 M and Triton X-100 between 0.1% and 3%.

33. (Withdrawn) The method according to claim 21,wherein the non ionic detergent is Triton X-100.

34. (Withdrawn) The method according to claim 29, wherein the medium is a microgel.

35. (New) The method according to claim 18 wherein the integrity of the chromatin or DNA of the sperm cells is evaluated through direct visual analysis by microscopy or by applying digitalized images analysis software